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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/567,107

05/03/2006

Motonori Yamamoto

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3025

30678

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04/18/2011

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EXAMINER

FANG, SHANE

ART UNIT

PAPER NUMBER

1766

MAIL DATE

DELIVERY MODE

04/18/2011

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/567,107	<b>Applicant(s)</b> YAMAMOTO ET AL.	
	<b>Examiner</b> SHANE FANG	<b>Art Unit</b> 1766	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 18 January 2011.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-7 and 9-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date. _____   | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Response to Amendment***

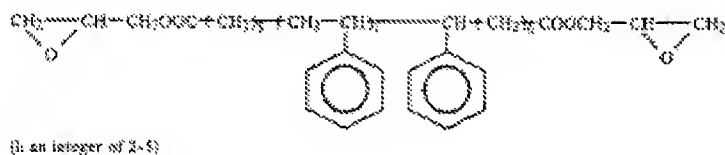
- No claim amendment.
- The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
- The previous 103 rejections of claims 1-7 and 9-20 over Warzelhan et al. in view of Ohnishi et al. have been overcome by applicants' antedating Ohnishi. The certified translation of FOR fully supports this invention.

### ***Claim Rejections - 35 USC § 103***

1. Claim 1-7 and 9-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Warzelhan et al. (US 6018004, listed on IDS) in view of Nakamura et al. (US 5006610).

As to claims 1-7 and 9-20, Warzelhan (abs., Ex. 14 and 16, 3:5-35, 5:1-40) discloses a biodegradable polymer blend of polyester and starch for producing molds. Warzelhan further teaches a blend of starch (about 9.4 parts about 32 wt.% by calculation and polyester (14 parts, about 48 wt.% by calculation) (Ex. 16). Warzelhan discloses biodegradable polyester as recited in claim 2 contains A) acid component comprising 30-70 mol% of adipic acid, 30-70 mol% terephthalic acid, 0-5 mol% of sulfonated compound; B) C2-C6-alkanediol; C)  $\text{HO}-(\text{C}(\text{O})-\text{G}-\text{O})_p-\text{H}$ , wherein  $p=1-1500$ ,  $\text{G}=\text{CH}_2$ -, D) a component capable forming ester linkages.

Nakamura (abs., 2:20-608, 8:1-65, (:1-15) discloses a polyester composition for producing molds comprising polyester, polyphenylene ether, and 0.5-10 parts of a copolymer of styrene and glycidyl methacrylate by weight for 100 parts of the polyester composition. By calculation, the copolymer is 0.5-11.1 wt% of the other two components.



Nakamura further

teaches adding said loading of the copolymer would render optimal impact resistance and heat deflection and avoid gelation during the melt process, and the resultant mold would show excellent mechanical property.

Therefore, as to Claims 1-7 and 9-20, it would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the biodegradable resin composition disclosed by Warzelhan and further added the copolymer of glycidyl (meth)acrylate/styrene of Nakamura at the disclosed loading, because the resultant resin mixture would yield molds having optimal impact resistance, optimal heat deflection, and excellent mechanical property,

Particularly to claims 6 and 16-19, Warzelhan teaches a mixing/reaction process of making a blend of a polyester and a starch in absence of free radical initiator (Ex. 16). Nakamura discloses the absence of free radical initiator. One of ordinary skill in the art

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at would obviously recognize to performance a one step mixing of all three components in absence of free radical initiator.

As to claims 7 and 20, Warzelhan and Nakamura are silent on the sequence of mixing polyester, starch, and copolymer of glycidyl (meth)acrylate/styrene. However, selection of any order of mixing ingredients is *prima facie* obvious. In re **Gibson**, 39 F.2d 975, 5 USPQ 230 (CCPA 1930). In this particular case, the application fails to disclose benchmark of one-step mixing vs. selective sequential mixing as recited in claims 7 and 20. All examples in Table 1-3 of instant application shows the selective sequential mixing using melaic anhydride as component iii instead of the claimed copolymer of glycidyl (meth)acrylate/styrene. No examples of one-step mixing are disclosed.

### ***Response to Arguments***

The argument for allowance of amended claims has been fully considered and persuasive. All previous 103 rejections have been withdrawn. See above new ground rejections.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SHANE FANG whose telephone number is (571)270-7378. The examiner can normally be reached on Mon.-Thurs. 8 a.m. to 6:30 p.m. EST.. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

sf

/RANDY GULAKOWSKI/  
Supervisory Patent Examiner, Art Unit 1766